

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANT: BAYER et al.

DATE: May 1, 2007

SERIAL NO.: 10/806,026

GROUP ART UNIT: 1713

FILED: 03/22/2004

EXAMINER: Lipman, Bernard

FOR: THERMOPLASTIC RAILROAD CROSS-TIES

ATTORNEY DOCKET NO.: C04057US (88155.2C)

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**SECOND DECLARATION OF JOHN C. BAYER  
UNDER 37 C.F.R. §1.132  
TRAVERSING GROUND OF REJECTION**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

The undersigned hereby declares that he has worked on "Engineered Thermoplastic Technology" for over seven years. The initial research was conducted at the LSU Chemical Engineering Laboratory in Baton Rouge, LA. Larger profile samples have been produced at plastic extrusion plants in different states. He has countless hours of laboratory, educational, and internet research in the field, and has spoken on the technology at a railroad tie association meeting. Hundreds of profile samples have been manufactured and the results monitored and the formulation perfected. He has traveled to the country of Kuwait, by invitation from Mr. Badar Amade, an attorney and businessman, to discuss his research and the composite technology. There are only a few people in this field of large profile production and his company's product is considered the best product in the industry. He also has significant experience in designing the molds for the extruded composite and has been involved in (1) the installation and monitoring of the trapezoidal-shaped and rectangular-shaped ties and (2) numerous strength and design tests. The undersigned hereby declares that such a background establishes him as one of ordinary skill in the pertinent art.

The undersigned hereby reiterates and reasserts the statements made in the Declaration Under 37 C.F.R. §1.132 Traversing Ground of Rejection dated November 17, 2006 ("First Bayer Declaration") as if re-stated and re-declared herein.

The undersigned hereby states that he was involved with the design, testing, and manufacturing of the trapezoidal shaped railroad tie as claimed in US Patent Application Serial No. 10/806,026. The dimensions of the trapezoidal shaped ties tested were around 8" (top width) x 12" (bottom width) x 7" (height) x 8'6" (length). The successful materials used in the formulation of the trapezoidal shaped ties tested include 100% recycled HDPE chips and virgin

calcium sulfate from an Oklahoma Mine (production), undried calcium sulfate (moisture content 13.5%) from the Shoshone Tribe Wyoming, or anhydrite calcium sulfate (moisture content 1 to 3 %) from Nevada. Thirty trapezoidal ties were manufactured in January 2001 with the above referenced dimensions. Each of the trapezoidal ties weighed about 320 pounds. Twenty five of the trapezoidal ties were installed in the New Orleans Public Belt Railroad line on April 5, 2001 and were monitored over a six (6) month period. The trapezoidal ties have been in the track since that date and have performed outstandingly. See Six Month Evaluation Report and May 30, 2003 letter from New Orleans Public Belt Railroad attached hereto. Over 5 million gross tons of traffic have crossed the ties and the ties continue to perform beyond expectations. The following unexpected and superior benefits were revealed:

1. The trapezoidal shape provides the ability to carry heavier loads. The train capacity load is not constrained by locomotive engine strength, but by the load on the track and subsurface. The trapezoidal shape increases the compressive strength of the tie while increasing the subsurface stability. The trapezoidal shape tie allows for heavier loads to be transported on the rail lines. See September 7, 2003 letter from Union Pacific attached hereto.
2. The use of trapezoidal shaped ties results in using fewer ties per mile of track. As a consequence, there is a substantial cost savings. See September 7, 2003 letter from Union Pacific attached hereto.
3. The trapezoidal shaped tie is a transitional tie; implementation of the trapezoidal shaped tie is simple. Concrete ties require specialized equipment for installation, require tearing up of the subsurface prior to installation, and cannot be interspersed with existing wood ties. The equipment used to install the trapezoidal shaped ties is the same equipment used to install wood ties. The trapezoidal shaped tie is interchangeable with wood ties and can be interspersed with existing wood ties. See March 25, 2001 letter from LTResources attached hereto.
4. Railroad tracks move dynamically when in use, allowing the train to travel with minimal resistance. By using the trapezoidal shaped ties, there is no evidence of plate cutting or spike back-out (two very important elements in evaluating a tie's performance). As with a solid wood tie, the trapezoidal shaped tie works with the dynamics of the track by allowing the required track fluctuations within the gauge limitations. Concrete ties are brittle, do not allow for sufficient track fluctuations and have a tendency to crack and loosen. See Exhibit 4 to First Bayer Declaration.
5. The trapezoidal shaped tie is 100% recyclable, resulting in additional cost savings. Reinforced composite ties and concrete ties are not recyclable. The trapezoidal shaped tie is environmentally friendly, and, unlike wood, is not subject to destructive elements such as rot, fungus and insect infestation. See Greater Baton Rouge Business Report, July 19, 2005, attached

hereto. The trapezoidal shaped ties do not need to be chemically treated with creosote (a substance which has been banned in Europe and continuously evaluated by the US Environmental Protection Agency) like a wood tie. The trapezoidal shaped tie is a "maintenance dream."

6. The composite trapezoidal shape tie does not conduct electricity like other ties which are made from reinforced materials (such as reinforcing bars or corrugated steel panels). This superior and unexpected benefit allows the ties to be used on systems driven by electricity, such as street cars and mass transit subways. See Greater Baton Rouge Business Report, July 19, 2005.

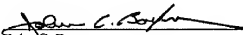
7. The composite trapezoidal shaped tie is projected to have a life of at least 50 years, a significant and unexpected advantage over wood ties. Solid wood ties are generally replaced every five-ten (5-10) years. See Preliminary Analysis of the Projected Life of Gypsum/Polyethylene Railroad Ties attached hereto and Exhibit 1 to First Bayer Declaration.

8. As of the date of this declaration, declarant is not aware of any other trapezoidal shaped ties installed in any rail line.

The undersigned hereby declares that all statements made of his own knowledge are true and that all statements made on information and belief are believed to be true, and that this statement is made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted,

5-2-07  
Date

  
John C. Bayer